



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,117	09/28/2005	Giovanni Maria Carlomagno	021500-141	4346
21839 7590 02/03/2010 BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404				
EXAMINER SZEWCZYK, CYNTHIA				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
02/03/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com  
offserv@bipc.com

**Office Action Summary****Application No.**

10/551,117

**Applicant(s)**CARLOMAGNO, GIOVANNI  
MARIA**Examiner**

CYNTHIA SZEWCZYK

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 20 cites the limitation "alternating nozzles along each nozzle bar". It is unclear which nozzles are considered alternating nozzles. Is this intended to be adjacent nozzles in each row of a plenum or adjacent nozzles in rows on either side of a plenum?

***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by SCHULTZ (US 4,711,655).

SCHULTZ teaches an apparatus for tempering a bent glass sheet, comprising means for conveying the bent glass sheet (col. 3, lines 48-59) and a pair of blastheads (56 and 58 in figure 1). The blastheads comprise upper (56 in figure 1) and lower blastheads (58 in figure 1), wherein each blasthead comprises a plurality of spaced elongated plenums (116, 118, 120, and 122 in figure 6) and wherein the plenums

extend transversely to the direction of conveyance of the bent glass sheet (see figure 2). The plenums contain an array of quench nozzles (104 in figure 6) wherein the length of the quench nozzles exceeding their diameter, as can be seen in figure 6. Figure 6 shows that each plenum has one row of nozzles. Figure 4 shows that the quench nozzles of each plenum are mutually inclined to provide diverging jets of quench gas and that each array of quench nozzles is curved in at least one direction. Figure 6 shows that the plenums are slightly separated (see dotted lines) which would provide side access between the plenums.

Regarding claim 2, figure 4 shows that the array of quench nozzles (104) comprises rows of quench nozzles extending along lines which are curved in the direction of elongation of the plenums.

Regarding claim 3, SCHULTZ discloses that the rows of quench nozzles are curved to match the curvature of the bent glass sheet and are curved in a direction that is the same as the bent glass sheet (col. 9, lines 59-62).

Regarding claim 4, SCHULTZ discloses that successive plenums in the direction of conveyance are arranged so that their profile at the level of the nozzles is curved in the direction of conveyance (col. 2, lines 63-68).

Regarding claim 5, see the discussion of claim 3.

Regarding claim 6, SCHULTZ discloses that the blastheads are arranged to be movable towards and away from each other (col. 5, lines 25-27).

Regarding claim 7, figure 2 shows that successive plenums of the lower blasthead are connected to each other by connecting surfaces (64) which figure 3 shows is inclined downward away from the centerline.

Regarding claim 8, figure 3 shows the unlabeled equivalent of the connecting surfaces (64) of the lower blasthead diverges away from the centerline.

6. Claims 1-3 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by FRANK et al. (US 5,507,852).

FRANK teaches an apparatus for tempering a bent glass sheet, comprising means for conveying the bent glass sheet (col. 2, lines 41-42) and a pair of blastheads (42 and 44 in figure 1). The blastheads comprise upper (42 in figure 1) and lower blastheads (44 in figure 1), wherein each blasthead comprises a plurality of spaced elongated plenums (52 in figure 2) and wherein the plenums extend transversely to the direction of conveyance of the bent glass sheet (see figure 2). The plenums contain an array of quench nozzles (58 in figure 2). Figure 2 shows that the nozzle bars contain two rows of nozzles (holes in figure), however, FRANK also discloses that the plenum may contain one row of individual nozzles extending from the plenum (col. 3 lines 56-59). It is inherent to one of ordinary skill in the art that the nozzles (holes in surface 58 of figure 2) have a length exceeding their diameter as FRANK discloses that the nozzle bar has nozzle holes that extend from the surface (58) through the plenum (55) to communicate with the air openings (51) (col. 3 lines 51-56). Figure 2 shows that the quench nozzles of each plenum are mutually inclined to provide diverging jets of quench

gas and that each array of quench nozzles is curved in at least one direction. Figure 2 shows space between each plenum, which would provide side access between plenums.

Regarding claim 2, figure 2 shows that the array of quench nozzles (58) comprises rows of quench nozzles extending along lines which are curved in the direction of elongation of the plenums.

Regarding claim 3, FRANK discloses that the rows of quench nozzles are curved to match the curvature of the bent glass sheet and are curved in a direction that is the same as the bent glass sheet (col. 3, lines 59-63).

Regarding claim 9, figure 2 shows that the quench nozzles are formed as bores in a nozzle bar (58), and figure 2 also shows that the outlets of the nozzles are level with a surface of the bar.

### ***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of MASUHIDE (JP 2000-247633).

FRANK teaches an apparatus for tempering a bent glass sheet with air quenching. FRANK is silent to the shape of the nozzle bores.

MASUHIDE teaches a bed structure for providing glass sheets with an air support. Figure 3 of MASUHIDE shows that the holes are part cylindrical (20) and

conical (23). It would have been obvious to one of ordinary skill in the art that the bore of FRANK could have had the shape of the air discharge hole of MASUHIDE because FRANK simply requires that the bores supply air through openings (col. 3, lines 45-48), which MASUHIDE would accomplish.

Regarding claim 11, figure 2 of MASUHIDE shows that the length of the cylindrical part of the bore (20) is greater than the length of the conical part (23).

Regarding claim 12, MASUHIDE teaches that the material of the bores, and in turn the bar, may be a heat resistant ceramic (trans. para. 0024).

9. Claims 10 rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of FUNK et al. (US 2006/0277947 A1).

FRANK teaches an apparatus for tempering a bent glass sheet with air quenching. FRANK is silent to the shape of the nozzle bores.

FUNK teaches a bed structure for providing glass sheets with an air support. Figure 5 of FUNK shows that the holes are part cylindrical (18) and conical (16). It would have been obvious to one of ordinary skill in the art that the bore of FRANK could have had the shape of the air discharge hole of FUNK because FRANK simply requires that the bores supply air through openings (col. 3, lines 45-48), which FUNK would accomplish.

Regarding claim 11, figure 5 of FUNK shows that the length of the cylindrical part of the bore (18) is greater than the length of the conical part (16).

Regarding claim 12, MASUHIDE teaches that the material of the surface, and in turn the bar, may be a ceramic (para. 0042).

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of MASUHIDE (JP 2000-247633) as applied to claims 10-12 above, and further in view of RHONEHOUSE (US 4,297,121).

FRANK as modified by MASUHIDE teaches an apparatus for tempering a bent glass sheet with air quenching using nozzle bars. Modified FRANK is silent to the use of polytetrafluoroethene.

RHONEHOUSE teaches that Teflon (also known as polytetrafluoroethene) may be used in glass manufacturing processes because it is heat resistant and it reduces wear on glass manufacturing apparatuses (col. 5, lines 14-20). It would have been obvious to one of ordinary skill in the art that Teflon could have been used as the material of the bar because it is a heat-resistant material able to withstand temperatures of heated glass.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of FUNK et al. (US 2006/0277947 A1) as applied to claims 10-12 above, and further in view of RHONEHOUSE (US 4,297,121).

FRANK as modified by FUNK teaches an apparatus for tempering a bent glass sheet with air quenching using nozzle bars. Modified FRANK is silent to the use of polytetrafluoroethene.



RHONEHOUSE teaches that Teflon (also known as polytetrafluoroethene) may be used in glass manufacturing processes because it is heat resistant and it reduces wear on glass manufacturing apparatuses (col. 5, lines 14-20). It would have been obvious to one of ordinary skill in the art that Teflon could have been used as the material of the bar because it is a heat-resistant material able to withstand temperatures of heated glass.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over FRANK et al. (US 5,507,852) in view of MCMASTER et al. (US 4,515,622).

FRANK teaches an apparatus for tempering a bent glass sheet with air quenching. FRANK is silent to the arrangement of the nozzle outlets of the nozzle bar.

MCMASTER teaches a glass sheet quench with oppositely angled jets. MCMASTER teaches that the quench means may be a nozzle bar with holes provided for discharging quenching gas (col. 3 lines 23-27). MCMASTER teaches that the holes extend in opposite angular directions (col. 3 lines 35-38). MCMASTER teaches that this is advantageous to provide a staggered arrangement of nozzles in order to provide a uniform pattern on the glass sheet (col. 4 lines 20-23) and also reduces pressure buildup of spent quenching gas and provides an energy efficient quench (col. 2 lines 28-33). It would have been obvious to one of ordinary skill in the art to use a staggered nozzle pattern in the nozzle bar of FRANK discloses that it is important to accurately control the gas flow during quenching (col. 4 lines 58-64) which MCMASTER would help accomplish.

***Response to Arguments***

13. Applicant's arguments filed October 28, 2009 have been fully considered but they are not persuasive. Applicant argues on page 9 that SCHULTZ teaches either 5 or 21 rows per plenum, however, this is incorrect as figure 6 clearly shows one row of nozzles per plenum (116, 118, 120, and 122 in figure 6).

14. Applicant argues on pages 11-12 that FRANK does not teach the nozzles of instant claim 1, however this is incorrect, as FRANK teaches a nozzle bar, which the applicant describes as meeting the limitations of claim 1 in instant claim 9. Additionally, it is inherent to one of ordinary skill in the art that the nozzles (holes in surface 58 of figure 2) have a length exceeding their diameter as FRANK discloses that the nozzle bar has nozzle holes that extend from the surface (58) through the plenum (55) to communicate with the air openings (51) (col. 3 lines 51-56).

***Conclusion***

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

16. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CYNTHIA SZEWCZYK whose telephone number is (571)270-5130. The examiner can normally be reached on Monday through Thursday 7:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CS

/Eric Hug/  
Primary Examiner, Art Unit 1791